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Upon the arrival of President Wilson, he read his address as retiring President, giving a general *résumé* of the work of the Society during the past year, and making some suggestions about its future work. The importance was also urged of establishing in the city of Birmingham a School of Natural Sciences, in which every youth in the limits of the city might have the opportunity of acquiring some scientific training, and especially in those branches of science which bear upon the manufacture of iron. The establishment of such a school would cause similar schools to spring up in the smaller towns and would be followed by industrial growth.

Papers were then read as follows: 'The Brown Ores at Leeds, in Jefferson County,' by J. W. Castleman, of the Sloss Iron and Steel Co. In this paper an account was given of the large deposits of brown ore recently developed by the Sloss company. 'On Trichina spiralis,' by Dr. John Y. Graham, of the State University. This paper, based upon original investigations by Dr. Graham, was illustrated by charts and by specimens under the miscroscope. 'On Roads and Road Making,' by Colonel Horace Harding. 'British Columbia and its Mineral Resources,' by Wm. M. Brewer. 'A Section through Red Mountain,' by A. W. Haskell.

The election of officers for the ensuing term was then taken up, with the following result: President, J. H. Fitts, of Tuscaloosa; Vice-Presidents, J. M. Garvin, of Rock Run, and J. H. McCune, of Woodward; Treasurer, Henry McCalley, of the University of Alabama; Secretary, Eugene A. Smith, University of Alabama. The Society then adjourned, to meet again on May 3d, next. After the adjournment the members of the Society and their invited guests partook of a banquet at the Morris Hotel.

EUGENE A. SMITH,
Secretary.

DISCUSSION AND CORRESPONDENCE.

ETHERION.

TO THE EDITOR OF SCIENCE: In a recent number of SCIENCE attention was called to what appeared to be an unreasonable attitude on the part of the editors of *Nature* towards Mr. Charles F. Brush's paper on Etherion, an attitude, namely, which simply refused to accept Mr. Brush's results until they were demonstrated by the spectroscope. A recent criticism by M. Smoluchowski de Smolan in *Nature* for January 5th is, on the other hand, entirely reasonable, being, as it is, a fair criticism of Mr. Brush's work. The question whether heat conductivity can demonstrate the existence of an unknown thing, and the question whether Mr. Brush really found a gas which had one hundred times the thermal conductivity of hydrogen *at the same pressure*, are very different. It is this latter question which is raised by M. de Smolan. It seems probable, indeed, that the anomalous thermal conductivity found by Mr. Brush may have been due to his not having rigorously excluded water vapor, thus making his pressure determinations uncertain. We may soon expect an answer to this point from Mr. Brush himself.

W. S. FRANKLIN.

NOTES ON INORGANIC CHEMISTRY.

AN extended research has been made by E. Hintz on the effect of varying quantities of the rare earths on the luminosity of the mantels for the Welsbach burners. The results are published in the *Zeitschrift für analytische Chemie*. Comparing the oxids of thorium and cerium alone and mixed in varying proportions, and, using for comparison the number of liters of gas consumed per hour per Hefner light unit, it appears that the consumption for pure thoria is 50 and for pure ceria 61. With traces of ceria in thoria the consumption decreases, 0.1% ceria giving 6.7; 0.2%, 3.1, and 0.5%, 2.1. On the other hand, thoria added to ceria has much less effect, 30% thoria requiring 48; 60%, 31, and 80%, 12. The minimum consumption, that is, the greatest light efficiency, is reached with a mixture of 99% thoria and 1% ceria, with which the consumption of gas is only 1.4 liters per hour per Hefner unit. Some decrease of efficiency is noticed after several hundred hours' use. As regards the addition of other oxids to this 'normal' thoria-ceria mixture (99:1) 1% of neodymia, lanthana, yttria or zirconia has no effect; nor does 2% of the first three. Two per cent. of zirconia, however, diminishes

slightly the efficiency. Larger proportions of these oxids are prejudicial, especially those of neodymia and yttria.

COMMERCIAL calcium carbid has, as is well known, a reddish brown color. Moissan has lately studied this color and finds that it is due to the presence of iron, even traces of which give it a decided tint. He finds, however, that the pure calcium carbid crystals are colorless and transparent.

APROPOS of the disputed occurrence of copper as a normal constituent of plants, Professor G. B. Frankforter, of the University of Minnesota, describes, in the last *Chemical News*, a very interesting occurrence of metallic copper disseminated in the pores of an oak tree in Minneapolis. The tree had died, and, on cutting it up, the presence of copper was so noticeable as to attract attention. Microscopic examination showed that only the outer annual rings contained an appreciable quantity of the metal, which was in the form of fine flakes, some of them 1.5 mm. in diameter. The copper appeared to be very pure. It seemed as if the tree had begun to absorb the metal only in the last few years, and that this had occasioned its death. The origin of the copper was uncertain, though the soil is known to contain native copper. The fact that the copper was in the native state would raise the question as to whether this is the usual form in which it occurs in plants. Another question might be raised as to whether plants take up any of the copper which is so largely used in fungicides, and as to whether this would eventually destroy a tree on which it was used.

UP to within a comparatively short time the physical chemistry of solutions has been almost confined to those in which the solvent is water. Attention is now being turned to other solutions, and very interesting questions arise as to the applicability of the theory of electrolytic dissociation and other theories which have been worked out only with aqueous solutions. We have already noticed in these columns the work of E. C. Franklin, of the University of Kansas, on liquid ammonia as a solvent. In the January number of the *Journal of Physical Chemistry*, L. Kahlenberg and A. T. Lincoln, of the University of Wisconsin, detail a number of experiments with different non-aqueous solvents as to electrical conductivity. The solvents used were methyl and ethyl alcohol, acetone, ethyl acetoacetate, benzaldehyde, and nitro-benzene. The substances dissolved were the chlorids of iron, antimony, bismuth, arsenic, tin and phosphorus. The molecular weights were also determined by freezing point depression with nitrobenzene as a solvent. The results obtained are not uniform enough, nor large enough in number, to be used for any generalization, but the following significant sentences occur at the close of the paper: "The general outlook at present appears to be that, in order to harmonize the molecular-weight determinations in many non-aqueous solutions with the relatively high electrical conductivity of the latter, the assumption that combination between solvent and dissolved substance takes place will have to be made. *Can it be true that, after its glorious success in explaining the properties of aqueous solutions of acids, bases and salts, the dissociation theory will need the help of its old rival, the hydrate theory (perhaps in a somewhat modified form), to explain the facts in the case of non-aqueous solutions?*" The authors call attention to the ideas of Werner regarding the existence of hydrated metal ions in solution, a theory which partakes of the nature of the two rival theories of solution. While Werner's theory may be in many respects unsatisfactory, it deserves to be better known among chemists, and may foreshadow something of the direction chemical thought will take, in the development out of the present valence theories.

J. L. H.

CURRENT NOTES ON METEOROLOGY.

WATERSPOUTS OFF THE COAST OF NEW SOUTH WALES.

AN incident quite unique in the history of waterspout observation occurred on May 16, 1898, off Eden, New South Wales. On this day fourteen complete waterspouts, and six others, more or less incomplete, occurred in the space of five hours. It so happened that a mining engineer, Mr. D. R. Crichton, was engaged in making certain observations with a theodolite in Eden at the time when the waterspouts began to form off-shore. Mr. Crichton made the most of his very exceptional opportunity;